From: Ex. 6 Personal Privacy (PP)
To: Shea, Valois
Cc: Ex. 6 Personal Privacy (PP)
Subject: Public Comment regarding Uranium mining project
Date: Wednesday, April 26, 2017 5:02:36 PM
Attachments: EPA Uranium Comment Leter.docx

Ms. Shae,

Attached is my comment regarding the proposed Uranium mining operation in the Black Hills of South Dakota. Thank you for the opportunity for public comment.

Sincerely,

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To whom it may concern,

1. Background

From this time until May 19th, the United States Environmental Protection Agency (EPA) is calling for public comments regarding a hot topic issue in the state of South Dakota. The small town of Edgemont, South Dakota is currently at the center of an environmental deal between the US company PowerTech and the EPA that consists of permitting the company to conduct an in situ uranium recovery project that is located roughly 13 miles northwest of the town. This recovery site is located on the southwestern edge of the Black Hills, a wild horse sanctuary established roughly 20 east of Edgemont. In 2015 the EPA determined that the cleanup of these sites, the Darrow, Triangle, and Freezeout mines, was not required. While the EPA may have sampled upstream and downstream of the site in question, they were criticised for their ruling because testing within the actual mine sites was not conducted due to the fact that site assessors were unable to gain private landowners permission to access the sites. While this is not entirely the fault of the EPA, the conclusions drawn from their testing ultimately do not reflect the real life exposure and contamination potential and therefore should not be fully accepted. In addition, these assessments do not take into consideration large soil and mine-waste piles or possible runoff potential from the mine pits. Due to sampling conducted downstream that did not exceed healthy concentration levels, the epa was not able to document an occurrence of a release, however large gaps in preliminary site testing leaves a large amount of uncertainty to be accounted for.

2. Overview of proposed action

This action by the EPA would allow Powertech to conduct in situ recovery mining that utilizes a series of wells to inject groundwater enriched with oxygen and baking soda into the uranium ore area. By doing so, the mixture dissolves the uranium ore and is then drawn out by a pump and sent to a processing plant. Once at the plant, the uranium can be removed using ion exchange techniques, while the leftover water is refortified with oxygen and baking soda again. By doing so, Powertech is able to create a sustainable extraction method that reuses the injected groundwater. This process eliminates the need for mining machines, open pits, mine waste, mine shafts, and mine workers who previously have been required to use explosives in previous extraction methods. From their purchase and surveying of the 11,000 acres Powertech bought in 2005, the company has reported an estimated 11 million pounds of recoverable uranium that would take over two decades to fully recover. The site itself has a few key natural characteristics that have prevented the uranium from contaminating further including good geological confinement and natural upward groundwater gradients that prevents dissolved uranium and mining solutions from traveling down the water gradient. In addition, engineering controls will be established including well field design and the implementation of monitoring wells that

measure groundwater levels and water chemistry. Finally, the operation will implement a technique known as bleed pressure which creates a pressure gradient in the injection process that causes the groundwater to flow towards the production wells, ensuring as much of the treatment water is recovered. Powertech has determined they will need roughly 190 employees for the operation and has estimated a rough investment of $51 million dollars. Once the operation is complete, Powertech has stated that all wells will be sealed/capped, pipelines and process facilities will be removed, and the site will be re-vegetated. Finally, freshwater will be pumped through the aquifer to ensure it is restored to NRC standards.

3. Personal opinion of proposed action

While taking all of the previous information into consideration, including the various technological controls, natural site features, and established plans of process and cleanup, I believe this operation has the potential to be a disastrous environmental catastrophe. Given the various technological failures that have occurred over the years, such as chemical plant explosions or the water contamination in Flint, Michigan, the most extreme consequences must be taken into consideration. These operations are highly digitalized and rely on a variety of different technological controls in order for the system to function properly without any unintentional runoff or seepage to occur. These processes are so streamlined and integrated that a single issue process could prove catastrophic to the community of Edgemont. For example, a chemical plant in the United States had a buildup of gases in a chemical reserve tank that caused in a backflow of chemicals into the system that resulted in a destructive explosion. This explosion destroyed most of the plant and resulted in one of the largest death counts from an industrial accident in recent years. These situations are thankfully not frequent occurrences, however a proper risk assessment must take into consideration both the probability and the impact of the consequences regardless of their assumed probability.

4. Consideration of legal and cultural impacts

In addition to the possibility of technology failure, the cultural significance to the area must also be taken into consideration. The Black Hills have been home the The Lakota, or the Sioux tribe, for generations. Because of this, the EPA is required to comply with the National Historic Preservation Act under the EPA's Tribal Policy on Consultation and Coordination with Indian Tribes. These people have been interested in the potential outcomes of the Powertech operation, and as such have requested the EPA provide them with a concise and well researched identification of potential effects of the proposed project. These are historic and sacred lands, and as such the EPA continues to provide the tribe with as much information as possible, however these potential cultural impacts must be weighed against the benefits.

5. Consideration of scientific argument

In addition to the cultural consequences, the scientific ramifications of the project must be taken into consideration. While research and modeling has determined that the flow rates between the 3 Black Hills aquifers is minimal, flow between aquifers ultimately occurs. While this flow rate has been deemed minimal a technological control failure could result in the tribe being exposed to an extremely dangerous radioactive material that has serious health implications associated with both short term and long term exposure. The EPA has drafted permits for Powertech that include a UIC 'Class III' Area Permit for injection wells for the in situ recovery of uranium in the Inyan Kara Group aquifers, as well as a UIC 'Class V' Area Permit for deep injection wells that would be used to dispose of recovery process waste fluids into the Minnelusa Formation below the Inyan Kara after treatment. These terms establish treatment requirements for the waste encompassed under the 'Class V" Area Permit that must meet all radioactive waste and hazardous waste standards. In addition, the permits establish monitoring of the sites prior, during, and after the operation to ensure concise data records of the process. Finally, the EPA is also considering an aquifer exemption rule for Powertech in combination with the UIC 'Class III' Area Permit. This would exempt Powertech from complying with the Safe Drinking Water Act in all uranium-bearing portions of the Inyan Kara Group aquifer. While it has been determined that water flow out of and between the aquifers is minimal, omitting a key step in the cleanup process is a counterproductive decisions of which the consequences must be taken into consideration.

6. Conclusion

Thank you for the opportunity to provide input on the proposed aquifer exemption for uranium mining waste issue. These environmental issues are things that many citizens of this country must deal with in their everyday lives, and unfortunately will be present for future generations to deal with. The long term time frame and scale of the consequences that could from technological control failure, corporate negligence, and natural leakages must be taken into consideration when determining whether or not to approve this project. WIth the information provided, it only makes sense to discourage potentially dangerous operations such as these, and it is my hope that I have convinced you to take into consideration a perspective you may not share.

Cordially,

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7. References

Thares, Paul. "Proposed Powertech (USA) Dewey-Burdock In Situ Recovery Uranium Mine Project". *iGrow | SDSU Extension*. N.p., 2017. Web. 30 Mar. 2017.

"EPA: Cleanup Not Required At Uranium Mines Near Edgemont". *KELOLAND News*. N.p., 2017. Web. 30 Mar. 2017.

"Public Notice: Administrative Record For The Dewey-Burdock Class III And Class V Injection Well Draft Area Permits | Protecting Underground Sources Of Drinking Water From Underground Injection (UIC) | US EPA". *Epa.gov*. N.p., 2017. Web. 30 Mar. 2017.

Kyllonen, David, and Kathy Peter. "GEOHYDROLOGY AND WATER QUALITY OF THE INYAN KARA, MINNELUSA, AND MADISON AQUIFERS OF THE NORTHERN BLACK HILLS, SOUTH DAKOTA AND WYOMING, AND BEAR LODGE MOUNTAINS, WYOMING". *www.usgs.gov*. N.p., 2017. Web. 30 Mar. 2017.

"EPA Seeks Public Comment On Draft Permits And Aquifer Exemption For Uranium Mining Project In Southwestern South Dakota | U.S. EPA News Releases | US EPA". *Epa.gov*. N.p., 2017. Web. 30 Mar. 2017.